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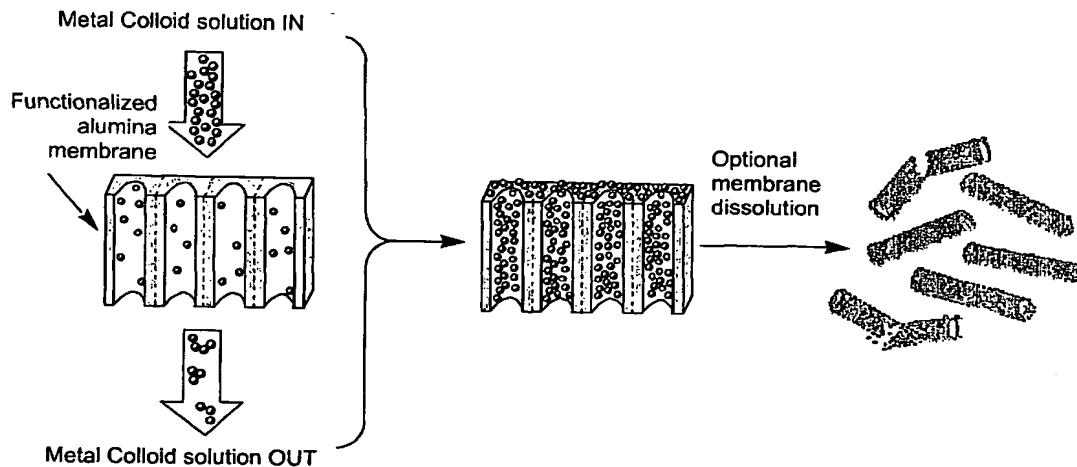
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[Continued on next page]

(54) Title: METHOD FOR PREPARING NANOTUBES FROM NANOPARTICLES AND NANOTUBES PRODUCED THEREBY



(57) Abstract: The present invention provides a new method for the synthesis of a novel kind of high-surface-area structures. A substrate is provided having pores or channels functionalized with an agent capable of binding nanoparticles, said pores or channels having a cross-sectional size of from about several nanometers to about 100 microns. A colloid solution comprising stabilized nanoparticles and a solvent is passed through said substrate, so as to bind and form more than one layer of nanoparticles in the pores or channels where the bound nanoparticles spontaneously coalesce to form a coherent material having a substantially hollow structure and being composed of nanoparticles, where said structure follows the shape of said pores or channels in the substrate. The structures properties can be modified by deposition of another material, to form structures coated by the other material on their surface. The structures (with or without modification) can be separated from the porous substrate to obtain a material having a desired structure, for example a tubular structure.

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## INTERNATIONAL SEARCH REPORT

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PCT/IL04/00061

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B05D 7/22

US CL : 427/181

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 427/181, 189, 190, 191, 230, 235

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Martin, C. R. et al. Investigations of the Transport Properties of Gold Nanotubule Membranes J. Phys Chem. B February 2001, Vol. 105, pages 1925-1934.	1,3-8,10,16,18-24-26,28,30,32
Y		2,9,11,17,19-21,23,29,27,31,33
Y	Martin, C.R. Nanomaterials: A Memberane-Based Synthetic Approach Science December 1994, Vol. 266, pages 1961-1966.	2,9,11,20,21,23,29,31,33
A	Hulteen, J.C. et al. Introducing Chemical Transport Selectivity into Gold Nanotubule Membranes J. Am. Chem. Soc. June 1998, Vol. 120, pages 6603-6604.	1-33
A	Jirage, K.B. et al. Effect of Thiol Chemisorption on the Transport Properties of Gold Nanotubule Membranes Anal. Chem. November 1999, Vol. 71, No. 21, pages 4913-4918.	1-33
A	Hou, Z. et al. Self-Assembled Monolayers on Electroless Gold Impart pH-Responsive Transport of Ions in Porous Membranes Langmuir December 1999, Vol. 16, pages 2401-2404.	1-33

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		document member of the same patent family

Date of the actual completion of the international search

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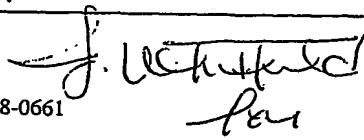
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INTERNATIONAL SEARCH REPORT

PCT/IL04/00061

**Continuation of Item 4 of the first sheet:**

The title of the invention is not precise. The following new title has been provided:

**METHOD FOR PREPARING NANOTUBES FROM NANOPARTICLES AND NANOTUBES PRODUCED THEREBY**

**Continuation of B. FIELDS SEARCHED Item 3:**

EAST

American Chemical Society Journal Search  
Elsevier Journal Search